

App. No. 09/924,320
Reply to Final Office Action

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): An apparatus for treating a vascular condition comprising:

a balloon including an outer first layer and an inner second layer, the outer first layer covering only a limited portion of the inner second layer; and

a stent disposed on the balloon;

wherein the outer first layer flows into gaps formed in the stent when the balloon stent assembly is heated to a predetermined temperature, and retains the stent on the balloon during intravascular movement and the inner second layer does not flow into the gaps.

Claim 2 (previously presented): The apparatus of claim 1 wherein the predetermined temperature comprises a temperature range of about 50 to 70 degrees Celsius.

Claim 3 (canceled).

Claim 4 (previously presented): The apparatus of claim 1 wherein the outer layer and the inner layer comprise a co-extruded laminate.

Claim 5 (previously presented): The apparatus of claim 1 wherein the outer layer comprises a tie layer material.

Claim 6 (previously presented): The apparatus of claim 1 wherein the outer layer comprises a functionalized material.

App. No. 09/924,320

Reply to Final Office Action

Claim 7 (previously presented): The apparatus of claim 6 wherein the functionalized material comprises at least one material selected from a group consisting of: polyethylene, ethylene-vinyl-acetate, acrylate, Bynel[®], and Plexar[®].

Claim 8 (previously presented): The system of claim 6 wherein the functionalized material is not tacky at temperatures below the predetermined temperature.

Claim 9 (previously presented): A balloon stent assembly system comprising:
a balloon including at least one non-tacky outer layer and at least one inner layer, the non-tacky outer layer covering only a limited portion of the at least one inner second layer;
and

a stent disposed on the outer layer;
wherein when the balloon is heated at a predetermined temperature the outer layer flows into gaps formed in the stent while the inner layer does not flow.

Claim 10 (previously presented): The system of claim 9 wherein the stent covers at least 55 percent of the outer layer.

Claim 11 (original): The system of claim 10 wherein the balloon provides at least 200 gram force of a stent retention force.

Claim 12 (previously presented): The system of claim 9 wherein the stent covers at least 70 percent of the outer layer.

Claim 13 (original): The system of claim 12 wherein the balloon provides at least 300 gram force of a stent retention force.

Claim 14 (previously presented): The system of claim 9 wherein the stent covers at least 90 percent of the outer layer.

App. No. 09/924,320

Reply to Final Office Action

Claim 15 (original): The system of claim 14 wherein the balloon provides at least 90 gram force of a stent retention force.

Claim 16 (original): The system of claim 9 wherein the predetermined temperature comprises a temperatures range of about 50 to 70 degrees Celsius.

Claim 17 (original): The system of claim 9 wherein the outer layer and the inner layer comprise a co-extruded laminate.

Claim 18 (original): The system of claim 9 wherein the outer layer comprises a tie layer material.

Claim 19 (original): The system of claim 9 wherein the outer layer comprises a first material and the inner layer comprises a second material different from the first material.

Claim 20 (original): The system of claim 19 wherein the first material comprises polyethylene.

Claim 21 (original): The system of claim 19 wherein the first material is not tacky at temperatures below the predetermined temperature.

Claim 22 (previously presented): A method of retaining a stent on a balloon comprising:

mounting the stent onto the balloon, the balloon including an inner layer and an outer layer covering only a limited portion of the inner layer, the stent including gaps, the stent covering at least 55 percent of the balloon;

sheathing the mounted stent and balloon with a sheath;

heating the mounted stent and balloon; and

flowing an outer layer of the balloon into the gaps formed in the stent while an inner layer of the balloon does not flow, and while the balloon is heated.

App. No. 09/924,320
Reply to Final Office Action

Claim 23 (original): The method of claim 22 wherein heating the balloon comprises elevating the balloon temperature to a temperature of about 50 to 70 degrees Celsius.

Claim 24 (original): The method of claim 22 wherein the outer layer flows into a predetermined gap arrangement.

Claim 25 (original): The method of claim 22 wherein the outer layer flows into a random gap arrangement.

Claim 26 (original): The method of claim 22 further comprising pressurizing the balloon.

Claim 27 (cancelled).

Claim 28 (previously presented): The method of claim 22 further comprising:
cooling the heated stent assembly; and
removing the sheath from the cooled assembly.

Claim 29 (previously presented): A balloon stent assembly system comprising:
a balloon including an outer first layer and an inner second layer, the outer first layer covering only a limited portion of the inner second layer;
a stent disposed on the balloon; and
a sheath disposed on the stent and the balloon,
wherein the outer first layer flows into gaps formed in the stent when the balloon stent assembly is heated to a predetermined temperature, and retains the stent on the balloon during intravascular movement and the inner second layer does not flow into the gaps, and wherein the sheath is removed after cooling the heated stent assembly from the predetermined temperature.

App. No. 09/924,320
Reply to Final Office Action

Claim 30 (previously presented): The apparatus of claim 1 wherein the stent covers at least 55 percent of the outer first layer.

Claim 31 (previously presented): The apparatus of claim 1 wherein the sheath is placed around the balloon to maintain a limited inflation size.

Claim 32 (previously presented): The apparatus of claim 31 wherein the apparatus is configured to allow removal of the sheath after the apparatus has been heated to the predetermined temperature and allowed to cool to room temperature.

Claim 33 (previously presented): The method of claim 23 further comprising: pressurizing the balloon while heating the balloon.